

530,753
10/530753

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number
WO 2004/032958 A1

(51) International Patent Classification⁷: A61K 39/095, C07K 14/22, A61P 31/04

(21) International Application Number:
PCT/IB2003/004848

(22) International Filing Date: 2 October 2003 (02.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0223741.0 11 October 2002 (11.10.2002) GB
0305831.0 13 March 2003 (13.03.2003) GB
0309115.4 22 April 2003 (22.04.2003) GB

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): CHIRON SRL [IT/IT]; Via Fiorentina 1, I-53100 Siena (IT).

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): PIZZA, Mariagrazia [IT/IT]; Chiron SRL, Via Fiorentina 1, I-53100 Siena (IT).

(74) Agents: MARSHALL, Cameron, John et al.; Carpmals & Ransford, 43-45 Bloomsbury Square, London WC1A 2RA (GB).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: POLYPEPTIDE-VACCINES FOR BROAD PROTECTION AGAINST HYPERVIRULENT MENINGOCOCCAL LINEAGES

(57) Abstract: A small number of defined antigens can provide broad protection against meningococcal infection, and the invention provides a composition which, after administration to a subject, is able to induce an antibody response in that subject, wherein the antibody response is bactericidal against two or three of hypervirulent lineages A4, ET 5 and lineage 3 of *N.meningitidis* serogroup B. Rather than consisting of a single antigen, the composition comprises a mixture of 10 or fewer purified antigens, and should not include complex or undefined mixtures of antigens such as outer membrane vesicles. Five protein antigens are used in particular: (1) a 'NadA' protein; (2) a '741' protein; (3) a '936' protein; (4) a '953' protein; and (5) a '287' protein.

WO 2004/032958 A1